

## 12 JACS Alps

# An Integrated View of the Dynamics of Regional Development as a Basis for Mutual Learning

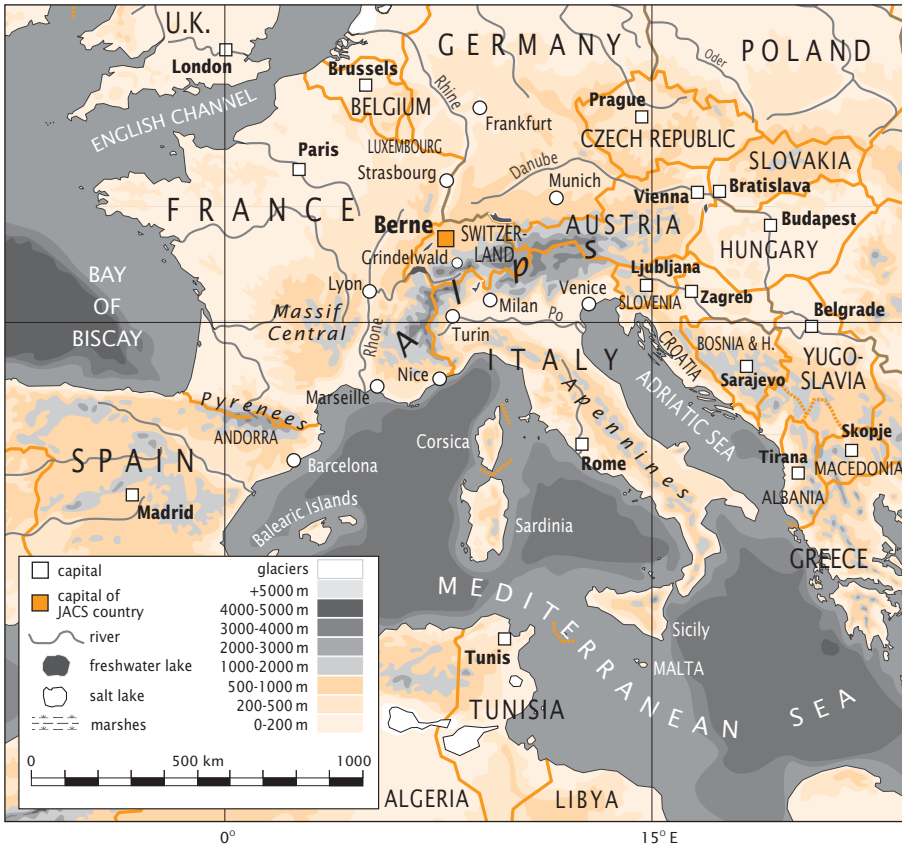
Karina Liechti and Urs Wiesmann

Fig. 1  
The community of Grindelwald, where a long history of tourism development has resulted in a subtle balance of tourism and agriculture, which is now endangered by exogenous and endogenous forces and trends.  
Photo: Urs Wiesmann, 1987



## **Abstract**

In contrast with the other JACS regions, the JACS Alps has a special, subordinate position within the conceptual framework of the NCCR North-South. Therefore, a regional workshop and related pre-synthesis for the JACS Alps was not foreseen in the framework of the SPSP project. The present brief contribution is thus not based on a transdisciplinary process, like the pre-syntheses from the other JACS regions, but attempts instead to address some of the core steps in such a pre-synthesis for comparative reasons, by drawing on literature and expertise. It deals with three sub-contexts within the dominant highland-lowland context: areas of concentration, deserted areas and recreational areas. A preliminary appraisal of core problems related to non-sustainable development in these three sub-contexts showed that the problems were less severe than in the other JACS regions. But the appraisal also hinted at potential syndromes of global change in the Alps. The status of research in the JACS Alps made it possible to concentrate on the key question of the balance between exogenous and endogenous forces, and the potential for guiding regional and local development. It thus provides a basis for exchange and mutual learning with other JACS regions. Recently this potential has been further enhanced through close, concrete collaboration with the newly established Jungfrau-Aletsch-Bietschhorn World Natural Heritage Site in the Swiss Alps.



*Fig. 2: The Alps, situated at the heart of Europe, are home to many different cultural and linguistic groups. Historically speaking, the Alps have been both a bridge and a dividing element between two high-potential core regions of Europe: the Rhine basin to the north and the plain of the Po river to the south.*

## **12.1 The special position of the JACS Alps in the NCCR North-South**

The Joint Area of Case Studies (JACS) for the Alps builds on the long-term experience of several NCCR North-South partners in alpine research. The JACS Alps focuses on syndrome analysis and mitigation in the Alps as a peripheral, sensitive and valuable area within a global core region of economic development and globalisation. The JACS Alps is also an historic example of problematic interactions involving human development and the environment. It therefore complements the eight other JACS, which are all located in developing and transition countries. Against this background, the JACS Alps was not selected as a core region of NCCR North-South research, but as a region useful for promoting exchange and mutual learning among partners from the South and the North, with a focus on syndrome analysis and mitigation.

Given the special and subordinate position of the JACS Alps in the NCCR North-South, no regional workshop and pre-synthesis report in accordance with the methodology outline in Chapter 3 was foreseen by the SPSP project. The present brief contribution should thus not be regarded as a full-fledged pre-synthesis report, but as an attempt to provide a basis for comparing and contrasting core problems in non-sustainable development and related syndrome mitigation research with problems in the other JACS regions. It draws on the expertise of the long-term inter- and transdisciplinary UNESCO Man and Biosphere Programme in the Swiss Alps (Bätzing, 1991; Messerli, 1989; Wiesmann, 1986, 1988, 2001), and more recently on activities related to the management of the Jungfrau-Aletsch-Bietschhorn World Natural Heritage Site in the Swiss Alps (UNESCO, 2003; Hammer, 2001; Verein UNESCO-Weltnaturerbe Jungfrau-Aletsch-Bietschhorn, 2002).

## 12.2 The JACS Alps and its syndrome contexts

Table 1

	Year	Switzerland
<b>Geography and social indicators</b>		
Surface (thousand sq. km)	2000	41
Total population (million)	2000	7.2
Annual population growth rate (%)	1990–2000	0.7
Urban population (% of total population)	2000	68
Annual urban growth rate (%)	1990–1995	–
<b>Development and economic indicators</b>		
GDP per capita, at purchasing power parties (USD)	2000	28769
HDI rank (total 173)	2002	11
Human Poverty Index (% of population below poverty line)	1989–2000	–
Population in agriculture male / female (% of labour force)	1998–2000	5/4
Public expenditure on education / health (% of total public expenditure)	1995–1997/1998	5.4/7.6
Population with access to safe water / adequate sanitation (%)	2000	100/100
<b>Environmental indicators</b>		
Crop land per capita (hectares)	1997–1999	0.06
Area of severe soil degradation (% of country)	2000	0
Protected area (% of total surface)	1999	26.9
Energy consumption per capita (kilogram of oil equivalent)	1999	3738

Some key indicators for Switzerland (JACS Alps).

Sources:  
UNDP, 2002;  
World Bank,  
2002a+b;  
FAO, 2000

As defined by the Alpine Convention (Bätzing, 1994a), the Alps cover an area of about 191,287 km<sup>2</sup>, including parts of eight countries: Switzerland, Austria, Italy, Germany, France, Slovenia, Monaco and Liechtenstein. The Alps are currently inhabited by 13 million people, who represent a variety of cultures and languages. In addition to diverse ecological conditions, the Alps are characterised by a great diversity of natural and cultural landscapes.

Many studies have highlighted the key role of agrarian mountain cultures, traditional agriculture and adapted land use systems in creating and maintaining diversity and uniqueness in the Alps (e.g. Bätzing, 1994b). These agrarian systems developed over a period of more than 1000 years and were based on the complementary functions of mountain agricultural and livestock production, in contrast to the surrounding higher-potential lowlands. In addition, the Alps were traditionally not only a border or dividing element but also a bridge between two high-potential core regions of Europe, namely the Rhine region to the north and the plain of the Po River to the south. Transalpine trade and cultural exchange played a continually important role in the development of the Alps.

Fig. 3  
Mountain agriculture has developed and stabilised over a long period, creating a cultural landscape of great natural value that is now endangered by current trends in agrarian structures and policies (Bussalp). Photo: Urs Wiesmann, 1987



The Alps began to lose their supplementary position in European agricultural production at the beginning of the 19th century. Marginalisation and impoverishment developed in many mountain areas. In subsequent centuries, the Alps increasingly became a peripheral region in a rapidly developing Europe. However, transit functions, as well as production of energy for and trade between the growing industrial centres in the surrounding lowlands, became important in some parts of the Alps. And beginning in the mid-19<sup>th</sup> century, tourism started to develop as a new form of use of alpine landscapes and resources, playing a major role in many alpine regions.



Fig. 4

Historically the Alps have been more than just a peripheral area: they have served as important bridges between major European centres, thereby creating a significant and valuable cultural heritage (Niedergesteln).

Photo: Urs Wiesmann, 2003

These trends of marginalisation and selective development have continued, with some variation, to the present day, creating differentiated paths and patterns of development in various parts of the Alps (Bätzing et al., 1995). These different paths and patterns can be used to define syndrome sub-contexts for the highland-lowland context of the JACS Alps. It must be noted, however, that the contexts described below are not the result of interdisciplinary discussion in a JACS workshop but initial proposals based on literature and expertise.

*1. Areas of concentration in the highland-lowland syndrome context of the Alps:* These regions are characterised by highly concentrated economic activity and infrastructure, as well as growing populations and the related problems of planning and overused and polluted resources. They are found mainly in the footzones bordering the Alps towards the economic core regions to the north and the south (Perlik and Bätzing, 1999) and on valley floors along the major transit routes crossing the Alps. In some cases they encompass more remote parts of the Alps, e.g. in the case of hydroelectric energy production.

*2. Deserted areas in the highland-lowland syndrome context of the Alps:* These regions traditionally lived on mountain agriculture, with a considerable portion of subsistence production in relatively marginal areas. With the coming of industrialisation and consequently a relative decline in the value of agrarian production, these regions became more and more marginalised, leading to out-migration and in some cases complete desertion of traditional land use systems. Loss of cultural landscape and biodiversity as well as increased risk from natural hazards can be observed, as a consequence of the retreat from agriculture with high levels of labour input. These regions are found mainly in remote parts of the Alps where accessibility is limited.

*3. Recreational areas in the highland-lowland syndrome context of the Alps:* These are regions in which marginalisation of traditional mountain agriculture was counterbalanced by the development of tourism at international and/or national scales, and where sub-centres of economic development emerged in the inner parts of the Alps. In many of these regions a subtle balance was struck between tourism and agriculture, with positive benefits for both. However, these sectors are endangered by supra-regional and global trends in international tourism and agricultural policy (Messerli and Wiesmann, 1996; Wiesmann, 1999).





Fig. 5

Tourism has partly counterbalanced the marginalisation of mountain agriculture in the last two centuries, but its potential and stability in a globalised world should not be overestimated. (Grindelwald tourist resort; part of a restaurant table-mat produced by the Jungfrau railway company).

Photo: Urs Wiesmann, 2001

### 12.3 Tentative appraisal of core problems for the JACS Alps

Once again it must be noted that no regional workshop and pre-synthesis were carried out for the specific case of the JACS Alps. The following attempt in Table 2 to appraise core problems in non-sustainable development for the three sub-contexts outlined above is therefore not based on a transdisciplinary negotiation process (see Chapter 3), but is the tentative result of an initial approach based on literature and expertise. The objective is therefore not to make a sustainability appraisal for the JACS Alps but to relate conditions in the Alps to situations and appraisals in the other JACS regions.

This comparative focus is not based on selection and definition of a specific list of core problems in non-sustainable development in the Alps, but was undertaken with reference to the combined list of core problems that resulted from a synthesis of all regional workshops (see Chapter 13). The same ordinal scale used in other JACS workshops was applied to weight the severity of individual core problems per region, ranging from (1) = not relevant, to (7) = worst case in global comparison.

Table 2

Weighting of core  
problems by realm  
and sub-contexts.

Scientific realms	Core problems of non-sustainable development <sup>1</sup>	Sub-contexts in the highland-lowland syndrome context		
		Areas of concentration	Deserted areas	Recreational areas
Political & institutional	1. Weak international geopolitical position and negotiating power	2	4	2
	2. Dominant and conflicting world views and ethical values	2	5	3
	3. Contradictory policies and weak formal institutions at different levels	2	4	4
	4. Inadequate legal framework and regulations, lack of enforcement, lack of resources	4	2	3
	5. Erosion of traditional and/or indigenous institutions	4	5	4
	6. Failure of governance, insufficient empowerment and decentralisation	2	3	2
	7. Unequal distribution of power and resources, corruption	4	3	3

Table 2  
(continued)

Scientific realms	Core problems of non-sustainable development <sup>1</sup>	Sub-contexts in the highland-lowland syndrome context		
		Areas of concentration	Deserted areas	Recreational areas
Socio-cultural & economic	8. Social, cultural and ethnic tensions and insecurity	2	2	2
	9. Prevalence of crime, violence and conflict	1	1	1
	10. Unused or constrained innovative capacities and knowledge	2	3	2
	11. Great socio-economic and gender disparities	4	3	3
	12. Incompatible and fragile economic systems with limited market and employment opportunities	2	6	3
	13. Dominance of the global economy over national development	3	4	4
Population & livelihood	14. Constraints on human rights and on potential for individual development	2	3	2
	15. Poverty and insecurity of livelihoods	2	4	2
	16. Risk of disease and health vulnerability	2	2	2
	17. Population pressure and multi-dimensional migration	3	3	2
	18. Unfavourable dynamics and imbalances in socio-demographic structures	4	5	5
Infrastructure & land use	19. Poor water supply and environmental sanitation	3	3	2
	20. Lack of adequate infrastructure and management (transport, energy and irrigation)	2	4	2
	21. Limited and inadequate socio-economic services (education, health, markets)	2	4	2
	22. Discrimination with regard to information and communication flows and technology	2	4	2
	23. Inequity in ownership of land as well as access to land and natural and common property resources	3	2	3
	24. Inadequate and conflicting land use systems and technologies	4	2	3
Bio-physical & ecological	25. Shortages of freshwater	2	2	2
	26. Degradation of land, soil and vegetation cover	5	4	3
	27. Degradation of forest and natural habitats	4	3	3
	28. Pollution and overuse of renewable and non-renewable natural resources	5	2	3
	29. Loss of biological and agro-biological diversity	4	3	2
	30. Risk of natural and human-induced hazards and climate change	3	4	3

<sup>1</sup> Version compiled on the basis of the workshops held in the other eight JACS of the NCCR North-South (see Chapter 13)

This initial appraisal of core problems in non-sustainable development for three sub-contexts in the highland-lowland context of the Alps illustrates that problems of sustainability exist in these contexts, but that they are of much less severe immediacy than problems in most contexts addressed in other JACS regions. It is unclear whether this is a result of buffering measures, circumstances and policies at regional, national or international scales, or whether the list of core problems from the other JACS regions is inadequate to encompass the problems of sustainability faced in the JACS Alps. This will have to be evaluated in the further course of the NCCR North-South.

Comparing the three sub-contexts, we can state that the fewest sustainability problems are found in the sub-context of recreational areas – at least according to the problem list from the other JACS regions. It must be pointed out, however, that the dynamics and trends affecting this sub-context may endanger the subtle endogenous balance between tourism and agriculture, and therefore add to the problems of sustainability in future. In the sub-context of concentrated areas, sustainability problems in the realms of land use and ecology are the most severe, whereas the sub-context of deserted areas is facing a cluster of problems that touches all realms. The differences between the three sub-contexts can be interpreted as preliminary indications of syndromes or potential syndromes. These first indications will, however, require further evaluation.

## 12.4 Research status and focus

The JACS Alps can draw on the experience of 25 years of integrated and transdisciplinary research (Wiesmann, 2001) that incorporates detailed disciplinary studies in a broad range of fields and includes participatory transfer processes. This research also provides analyses and accounts of the various changes in alpine regions that have taken place during the past 200 years. This period was characterised by deep-rooted economic, social and political change and various exogenous driving forces. For example, the wealthy Swiss tourist resort of Grindelwald was once an impoverished and remote mountain village. The difference in income between inhabitants and tourists was at a ratio greater than 1 to 100 in the 19<sup>th</sup> century – similar to differences found nowadays in many tourist areas in developing countries. Research experience and results of this sort make it possible to develop indicators and hypotheses for analysis of NCCR North-South issues, concerned with when, how and under which circumstances inhabitants were empowered to guide development in their villages. This in turn makes it possible to discuss the successes and failures of various development approaches, strategies and paths, and provides a basis for mutual learning processes by means of exchange related to cases within the context of the NCCR North-South.

Against the background of this research and its potential to promote mutual learning processes within the overall programme, it becomes clear that the core research questions for the JACS Alps relate to the balance between endogenous and exogenous driving forces and the potential to foster sustainable development within the various sub-contexts. Recently the potential for a significant role for the JACS Alps in promoting research, debate and mutual learning processes on these questions within the overall NCCR North-South was greatly enhanced through a strong collaborative link with the newly established Jungfrau-Aletsch-Bietschhorn World Natural Heritage Site (JAB). This originally unforeseen opportunity offers scope for a concrete contribution to the development of integrated and transdisciplinary management of this World Heritage Site and its surrounding contexts. It also enhances the possibility to relate to a broad range of partners in Switzerland and enhance exchange and collaboration with partners from other JACS regions dealing with regional development and conservation.

## References

- Bätzing W. 1991. *Die Alpen. Entstehung und Gefährdung einer europäischen Kulturlandschaft*. München: C. H. Beck.
- Bätzing W. 1994a. Die Alpenkonvention – ein internationales Vertragswerk für eine nachhaltige Alpenentwicklung auf einem mühevollen Weg der politischen Realisierung. In: Herbert F, editor. *Gefährdung und Schutz der Alpen*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften, pp 185–205.
- Bätzing W. 1994b. Nachhaltige Naturnutzung im Alpenraum: Erfahrungen aus dem Agrarzeitalter als Grundlage einer nachhaltigen Alpen-Entwicklung in der Dienstleistungsgesellschaft. In: Herbert F, editor. *Gefährdung und Schutz der Alpen*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften, pp15–51.
- Bätzing W. 1996. *Landwirtschaft im Alpenraum – unverzichtbar oder zukunftslos? Eine alpenweite Bilanz der aktuellen Probleme und der möglichen Lösungen*. Berlin: Blackwell Wissenschafts-Verlag.
- Bätzing W, Messerli P, Perlik M. 1995. Regionale Entwicklungstypen: Analyse und Gliederung des schweizerischen Berggebietes. Berne: BIGA/Zentralstelle für regionale Wirtschaftsförderung.
- FAO [Food and Agriculture Organization of the United Nations]. 2000. *Land Resource Potential and Constraints at Regional and Country Levels*. World soil resources reports. Rome: FAO.
- Hammer T. 2001. Biosphärenreservate und regionale (Natur-)Parke – Neue Konzepte für die nachhaltige Regional- und Kulturlandschaftsentwicklung? *GAIA* 10(4):279–285.
- Messerli P. 1989. *Mensch und Natur im alpinen Lebensraum – Risiken, Chancen und Perspektiven. Zentrale Erkenntnisse aus dem schweizerischen MAB-Programm*. Berne: Haupt.
- Messerli P, Wiesmann U. 1996. Nachhaltige Tourismusentwicklung in den Alpen – die Überwindung des Dilemmas zwischen Wachsen und Erhalten. In: Hurni H et al., editors. *Umwelt, Mensch, Gebirge*. Jahrbuch der Geographischen Gesellschaft Bern, Bd. 59. Berne: Lang, pp 175–194.
- Perlik M, Bätzing W, editors. 1999. *L'avenir des villes des Alpes en Europe/ Die Zukunft der Alpenstädte in Europa*. Berne: Geographica Bernensia P36 in Co-Edition mit Revue de Géographie Alpine (no. 2/99).
- UNDP [United Nations Development Programme]. 2002. *Human Development Report: Deepening Democracy in a Fragmented World*. New York: UNDP.

- UNESCO. 2003. *Convention Concerning the Protection of the World Cultural and Natural Heritage*. [http://whc.unesco.org/world\\_he.htm](http://whc.unesco.org/world_he.htm); accessed on 11 February 2003.
- Verein UNESCO-Weltnaturerbe Jungfrau-Aletsch-Bietschhorn, editor. 2002. *Jungfrau, Aletsch, Bietschhorn. Das erste UNESCO-Weltnaturerbe der Alpen*. Visp: Mengis.
- Wiesmann U. 1986. *Wirtschaftliche, gesellschaftliche und räumliche Bedeutung des Fremdenverkehrs in Grindelwald*. Schlussbericht zum schweizerischen MAB-Programm, Nr. 24. Berne: Bundesamt für Umweltschutz.
- Wiesmann U. 1988. *Ergebnisse der Untersuchungen im MAB-Testgebiet Grindelwald und deren Umsetzung in Politik und Praxis*. Schlussbericht zum schweizerischen MAB-Programm, Nr. 37. Berne: Bundesamt für Umweltschutz.
- Wiesmann U. 1999. Striking a balance in community-based mass tourism. In: Mountain Agenda, editor. *Mountains of the World: Tourism and Sustainable Mountain Development*. Berne: Haupt, pp 14–15.
- Wiesmann U. 2001. Umwelt, Landwirtschaft und Tourismus im Berggebiet – Konfliktbearbeitung im Leitbild ‘Grindelwald 2000’. In: Mader G, Eberwein W, Vogt WR, editors, Bächler G, coordinator. *Die Umwelt – Konfliktbearbeitung und Kooperation*. Österreichisches Studienzentrum für Frieden und Konfliktlösung 7. Münster: Agenda, pp 237–249.
- World Bank. 2002a. *World Development Report 2002: Building Institutions for Markets*. Oxford University Press.
- World Bank. 2002b. *World Development Indicators 2002*. Washington, DC: World Bank.